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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/662,432 | 09/16/2003 | Wen-Ching Chen | | 1037 |
| 7590 | 05/24/2004 | | EXAMINER | |
| Chen, wen-Ching P.O. Box 2103 Taichung, TAIWAN | | | PYO, KEVIN K | |
| | | | ART UNIT | PAPER NUMBER |
| | | | | 2878 |

DATE MAILED: 05/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/662,432 | CHEN, WEN-CHING | |
| | Examiner | Art Unit | |
| | Kevin Pyo | 2878 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 9/16/2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some *
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "through hole" of claims 1, 8 and 11; the "channel" of claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 2, line 9, "a open" should be changed to --an open--.

On page 2, line 14, "Fig.9" should be changed to --Fig.10--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1-6 and 8-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1, 7 and 11, these claims recite the limitation "the opaque mask having a through hole defined for allowing the semi-conductor image sense chip extending through the opaque mask". Due to the lack of the description in the specification, however, it is unclear how and in what manner the recited image sense chip (10) is extending the opaque mask (24). It appears, from Fig. 1, that the image sense chip (10) is placed below the opaque mask (24).

Clarification is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman (US 2004/0056365).

Regarding claim 1, as far as the claim is understood, Kinsman shows in Figs. 3 and 4 the following elements of applicant's invention: a) a semiconductor image chip (2) having a top face (4) attached to a bottom face (22) of a glass plate (18) and multiple electric contacts (12, 14) formed on the semiconductor image sense chip (Fig. 1); and b) a conductive interconnection circuit formed on the bottom face of the glass plate (Fig. 4), the conductive interconnection circuit having multiple first solder points (28) each electrically connected to a corresponding one of the electric contacts of the semiconductor image sensing chip and multiple second solder points (30) formed one side of the glass plate, the multiple second solder points adapted to be

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electrically connected to a printed circuit, and an opaque coating (lines 17-20 of paragraph 35) formed on the glass plate (18) to prevent selected wavelengths of light from passing therethrough to sensing circuitry. Although Kinsman does not specifically mention that the periphery and the bottom face of the glass plate is covered with an opaque mask, the specific configuration of an opaque mask on the glass plate would have been obvious to one of ordinary skill in the art at the time of the invention was made in view of eliminating the possibility of stray light entering the sensor of Kinsman from side and/or underneath direction.

Regarding claim 2, the limitation therein is disclosed in paragraph 39.

Regarding claims 3 and 4, the limitations therein are shown in Fig.1 (see paragraph 37).

Regarding claims 5 and 6, the limitations therein are disclosed in paragraphs 34 and 36.

6. Claims 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman in view of Yang et al (US 2004/0056971).

Regarding claim 7, Kinsman shows in Figs.3 and 4 the following elements of applicant's invention: a) a semiconductor image chip (2) having a top face (4) attached to a bottom face (22) of a glass plate (18) and multiple electric contacts (12, 14) formed on the semiconductor image sense chip (Fig.1); and b) a conductive interconnection circuit formed on the bottom face of the glass plate (Fig.4), the conductive interconnection circuit having multiple first solder points (28) each electrically connected to a corresponding one of the electric contacts of the semiconductor image sensing chip and multiple second solder points (30) formed one side of the glass plate, the multiple second solder points adapted to be electrically connected to a printed circuit. Kinsman does not disclose that the recited lens set secured on a glass plate. However, Yang et al shows in

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Fig. 1 a lens holder (120) placed on an image sensing semiconductor assembly (130) and allowed a conductive interconnection circuit (131a) extending through the holder. It would have been obvious to one of ordinary skill in the art to place the lens holder (120) of Yang et al on the top surface (20) of the glass plate (18) in view of preventing dirt or contaminants from mounting on the top surface of the glass plate, thereby improving the performance of the image sensing device.

Regarding claims 8 and 11, as far as the claim is understood, Kinsman shows in Fig. 1 the recited electric contacts (see paragraph 37). Regarding the limitation of the placement of an opaque mask, the specific configuration of an opaque mask on the glass plate would have been obvious to one of ordinary skill in the art at the time of the invention was made in view of eliminating the possibility of stray light entering the sensor of Kinsman from side and/or underneath direction.

Regarding claims 9, 10, 12 and 13, the limitations therein are disclosed in paragraphs 34 and 36.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Glenn et al (6,342,406) is cited for disclosing flip chip on a glass image sensor package.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Pyo whose telephone number is (571) 272-2445. The examiner can normally be reached on Mon-Fri (with flexible hour), First Mon. off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin Pyo
Primary Examiner
Art Unit 2878

Pkk
5/13/04